2017–18 Programs of Study

Tennessee's Career and Technical Education (CTE) programs of study are meant to provide a relevant framework of industry-aligned, rigorous courses that progress a student in knowledge and skills year over year. They provide invaluable opportunities for students to experience a subject they are passionate about and explore interests that lead to postsecondary learning and future career paths. These sequenced courses also reflect and support the three credit elective focus requirement for graduation. Level one courses are encouraged to be taken by students in ninth grade; however, districts may make scheduling decisions that work best for their communities and students.

Work-based learning (WBL) is seen as a valuable opportunity for all CTE students. The **Work-Based Learning: Career Practicum** course may substitute for the Level 4 offering in all Programs of Study. For more information, please refer to the department's Work-Based Learning Policy Guide at https://tn.gov/education/topic/work-based-learning. Early postsecondary opportunities (EPSO), such as dual enrollment and dual credit courses, are also a valuable opportunity for all students.

The **dual enrollment course codes** may substitute for the Level 3 or 4 course offerings in any aligned career cluster's programs of study where those course codes represent postsecondary courses. Aligned **industry certifications** have been placed under the corresponding CTE course within the program of study to demonstrate where students have the opportunity to sit for industry and postsecondary aligned industry certifications.

Career Exploration (6166) is available to orient eighth- and ninth-grade students to high school, postsecondary, and career options and develop 21st century skills. This course can serve as a prerequisite for any CTE course and program of study; however, it is not a required part of any program of study and should not be counted toward CTE concentrator status.

For additional information about courses or programs of study, please reach out to the career cluster consultants or visit our webpage at: https://tn.gov/education/topic/career-clusters.

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Advanced Manufacturing

Program of Study	Level 1	Level 2	Level 3	Level 4
Machining Technology	Principles of Manufacturing (5922)	Principles of Machining I (5929)	Principles of Machining II (5923) -or- **Dual Enrollment** Machining Technology (4060)	Manufacturing Practicum (5926) -or- **Dual Enrollment** Machining Technology (4060)
	Industry Certification: Machining Level I - Measurement, Materials, and Safety Certification (NIMS)	**Industry Certification:** Production Certification (CPT) Safety Module	**Industry Certification:** Production Certification (CPT) Quality Practices and Measurement Module	**Industry Certification:** Production Certification (CPT) Manufacturing Processes and Production Module and Maintenance Awareness Module
Electromechanical Technology	Principles of Manufacturing (5922)	Introduction to Electromechanical (6091)	Advanced Electromechanical Technology (6090) -or- **Dual Enrollment** Electromechanical Technology (4061)	Manufacturing Practicum (5926) -or- **Dual Enrollment** Electromechanical Technology (4061)
	Industry Certification: Machining Level I - Measurement, Materials, and Safety Certification (NIMS)			
Mechatronics	Principles of Manufacturing (5922)	Digital Electronics (5925) Or Robotics & Automated Systems (6143) Or Project Lead the Way (PLTW) Computer Integrated Manufacturing (6055)	Mechatronics I[1] (6156) -or- **Dual Enrollment** Mechatronics (4063)	Mechatronics II[1] (6157) -or- Manufacturing Practicum (5926) -or- **Dual Enrollment** Mechatronics (4063)
	Industry Certification: Machining Level I - Measurement, Materials, and Safety Certification (NIMS)			**Industry Certification:** Level 1 Siemens Certified Mechatronic Systems Assistant

Program of Study	Level 1	Level 2	Level 3	Level 4
Welding	Principles of Manufacturing (5922)	Welding I (6078)	Welding II[2] (6033) -or- **Dual Enrollment** Welding (4062)	Manufacturing Practicum (5926) -or- **Dual Enrollment** Welding (4062)
	Industry Certification: Machining Level I - Measurement, Materials, and Safety Certification (NIMS) **-and/or-** AWS SENSE Entry Level Welder		**Industry Certification:** AWS SENSE Advanced Level Welder or American Welding Society Certified Welder	

[1] Local dual credit and/or dual enrollment opportunities exist for this course.
[2] May be taught for 1 or 2 credits.

Available courses for elective credit in this cluster:
- ***Work-Based Learning: Career Practicum*** (6105) course may substitute for the Level 4 offering in all programs of study.

Agriculture, Food, & Natural Resources

Program of Study	Level 1	Level 2	Level 3	Level 4
Veterinary and Animal Science	Agriscience[1] (5957)	Small Animal Science (5958)	Large Animal Science (6116) -or- **Dual Enrollment** Veterinary & Animal Science (4065)	Veterinary Science[1] (5961) -or- **Dual Enrollment** Veterinary & Animal Science (4065)
				Industry Certification: TN Specific Industry Certification Animal Science
	Supervised Agricultural Experience (5964)			
Agricultural Engineering and Applied Technologies	Agriscience[1] (5957)	Principles of Agricultural Mechanics (5944)	Agricultural Power and Equipment (5945) -or- **Dual Enrollment** Agricultural Engineering & Applied Technologies (4066)	Agricultural and Biosystems Engineering (5963) -or- **Dual Enrollment** Agricultural Engineering & Applied Technologies (4066)
	Supervised Agricultural Experience (5964)			
Agribusiness	Agriscience[1] (5957)	Principles of Agribusiness (5946)	Organizational Leadership and Communications (5956) -or- **Dual Enrollment** Agribusiness (4067)	Agricultural Business and Finance[2] (5943) -or- **Statewide Dual Credit** Intro to Agribusiness (4270) -or- **Dual Enrollment** Agribusiness (4067)
	Supervised Agricultural Experience (5964)			
Food Science	Agriscience[1] (5957)	Principles of Food Production (6118)	Food Science and Safety (6115) -or- **Dual Enrollment** Food Science (4068)	Advanced Food Science (6113) -or- **Dual Enrollment** Food Science (4068)
	Supervised Agricultural Experience (5964)			

Program of Study	Level 1	Level 2	Level 3	Level 4
Horticulture Science	Agriscience[1] (5957)	Principles of Plant Science and Hydroculture (6119)	Greenhouse Management (5954) -or- **Statewide Dual Credit Course** Introduction to Plant Science (4269) -or- **Dual Enrollment** Horticulture Science (4069)	Landscaping and Turf Science (5951) -or- **Dual Enrollment** Horticulture Science (4069)
				Industry Certification: Commercial Pesticide Certification
	Supervised Agricultural Experience (5964)			
Environmental and Natural Resource Management	Agriscience[1] (5957)	Applied Environmental Science[1] (6114)	Plant and Soil Science (5950) -or- **Dual Enrollment** Environmental & Natural Resources Management (4070)	Natural Resources Management (6117) -and/or- AP Environmental Science (3236) -or- **Dual Enrollment** Environmental & Natural Resources Management (4070)
	Supervised Agricultural Experience (5964)			

[1] Satisfies one lab science credit required for graduation. [2] Satisfies ½ credit of Personal Finance required for graduation.

Available courses for elective credit in this cluster:
- ***Work-Based Learning: Career Practicum*** (6105) course may substitute for the Level 4 offering in all programs of study.
- ***Introduction to Geographic Information Systems*** (6142) is a supplemental course which can be offered in addition to courses within the Agricultural Engineering and Applied Technologies program of study but does not count toward concentrator status.
- ***Cambridge courses*** are supplemental courses which can be offered in addition to courses within the career cluster but do not count toward concentrator status.

Architecture & Construction

Program of Study	Level 1	Level 2	Level 3	Level 4
Architectural & Engineering Design	Architectural & Engineering Design I (6037)	Architectural & Engineering Design II (6039)	Architectural & Engineering Design III[1] (5927) -or- **Dual Enrollment** Architectural & Engineering Design (4075)	Engineering Practicum (6141) -and/or- AP Calculus (3127, 3139, or 3128) -and/or- AP Physics (3238, 3239, 3234, or 3240) -or- **Dual Enrollment** Architectural & Engineering Design (4075)
Interior Design	Foundations of Interior Design (6014)	Residential Interior Design (6006)	Commercial Interior Design (6122) -or- **Dual Enrollment** Interior Design (4076)	Advanced Interior Design (6121) -or- **Dual Enrollment** Interior Design (4076)
Residential & Commercial Construction	Fundamentals of Construction (6073)	Residential & Commercial Construction I (6162)	Residential & Commercial Construction II[1] (6163) -or- **Dual Enrollment** Residential & Commercial Construction (4072)	Construction Practicum (6160) -or- **Dual Enrollment** Residential & Commercial Construction (4072)
	Industry Certification: NCCER Core Curriculum	**Industry Certification:** NCCER Construction Technology		
Structural Systems	Fundamentals of Construction (6073)	Structural Systems I (6164)	Structural Systems II[1] (6165) -or- **Dual Enrollment** Structural Systems (4073)	Construction Practicum (6160) -or- **Dual Enrollment** Structural Systems (4073)
	Industry Certification: NCCER Core Curriculum	**Industry Certification**: NCCER Carpentry Level One	**Industry Certification**: NCCER Carpentry Level Two	

Program of Study	Level 1	Level 2	Level 3	Level 4
Mechanical, Electrical, & Plumbing (MEP) Systems	Fundamentals of Construction (6073)	MEP Systems (6161)	HVAC (6077) -and/or- Electrical Systems (6075) -and/or- Plumbing Systems (6082) -or- **Dual Enrollment** Mechanical, Electrical, & Plumbing Systems (4074)	Construction Practicum (6160) -or- **Dual Enrollment** Mechanical, Electrical, & Plumbing Systems (4074)
	Industry Certification: NCCER Core Curriculum		**Industry Certifications for 6077**: HVAC Excellence, Heating, Electrical, Air Conditioning Technology (H.E.A.T.) HVAC Excellence Employment Ready Certifications Universal R-410A EPA Section 608 Universal **Industry Certification for 6075:** NCCER Electrical Level One **Industry Certification for 6082**: NCCER Plumbing Level One	

[1] May be taught for 1 or 2 credits.
Available courses for elective credit in this cluster:
- *Work-Based Learning: Career Practicum* (6105) may substitute for the Level 4 offering in all programs of study.
- *Introduction to Geographic Information Systems* (6142) is a supplemental course which can be offered in addition to courses within the Architectural and Engineering Design program of study but does not count toward concentrator status.
- *Welding I* (6078) is a supplemental course which can be offered in addition to courses within the MEP, Residential & Commercial Construction, and Structural Systems programs of study but does not count toward concentrator status.

Arts, Audio/Visual Technology, & Communications

Program of Study	Level 1	Level 2	Level 3	Level 4
Digital Arts & Design	Digital Arts & Design I (6084)	Digital Arts & Design II (6086)	Digital Arts & Design III (6087) -or- **Dual Enrollment** Arts & Design (4078)	Applied Arts Practicum (6158) -and/or- AP Studio Art: 2-D Design (3545) -or- **Dual Enrollment** Arts & Design (4078)
Audio/Visual Production	A/V Production I (6049)	A/V Production II (6050)	A/V Production III (6083) -or- **Dual Enrollment** Audio/Visual Production (4079)	Applied Arts Practicum (6158) -and/or- AP English Language and Composition (3013) -or- **Dual Enrollment** Audio/Visual Production (4079)
Fashion Design	Visual Art I (3501)	Foundations of Fashion Design (6120)	Fashion Design (6008) -or- **Dual Enrollment** Fashion Design (4080)	Advanced Fashion Design (6009) -or- **Dual Enrollment** Fashion Design (4080)

Available courses for elective credit in this cluster:
- *Work-Based Learning: Career Practicum* (6105) may substitute for the Level 4 offering in all programs of study.
- *Journalism* (3008) is a supplemental course which can be offered in addition to courses within the Audio/Visual Production program of study but does not count toward concentrator status.
- *Cambridge courses* are supplemental courses which can be offered in addition to courses within the career cluster but do not count toward concentrator status.

Business Management & Administration

Program of Study	Level 1	Level 2	Level 3	Level 4
Business Management	Introduction to Business & Marketing (5905)	Business Communications (5888) -and/or- Accounting I (5910)	Business Management (5889) -or- **Dual Enrollment** Business Management (4082)	Business & Entrepreneurship Practicum (6159) -and/or- Virtual Enterprise International[1] (5900) -or- **Dual Enrollment** Business Management (4082)
Office Management	Computer Applications (5891)	Business Communications (5888)	Business Management (5889) -or- **Dual Enrollment** Office Management (4083)	Advanced Computer Applications (5904) -or- **Dual Enrollment** Office Management (4083)
				Industry Certification: Microsoft Office Specialist: (Excel) (PowerPoint) (Word) Microsoft Office Expert Microsoft Officer Master
Health Services Administration	Introduction to Business & Marketing (5905) -or- Health Science Education (5998)	Health Information Technology (5997)	Business Management (5889) -or- **Dual Enrollment** Health Services Administration (4084)	Health Services Administration Practicum (6188) -or- **Dual Enrollment** Health Services Administration (4084)

Program of Study	Level 1	Level 2	Level 3	Level 4
Human Resources Management	Introduction to Business & Marketing (5905)	Business Communications (5888)	Human Resources Management (6186) -or- **Dual Enrollment** Human Resources Management (6190)	Human Resources Management Practicum (6187) -or- **Dual Enrollment** Human Resources Management (6190)

[1] Satisfies ½ credit of Economics required for graduation.

Available courses for elective credit in this cluster:
- *Work-Based Learning: Career Practicum* (6105) may substitute for the Level 4 offering in all programs of study.
- *American Business Legal Systems* (5892) and *Business Economics* (5898) are supplemental courses which can be offered in addition to courses within the Business Management and Human Resources Management programs of study but do not count toward concentrator status.
- *Cambridge courses* are supplemental courses which can be offered in addition to courses within the career cluster but do not count toward concentrator status.

Education & Training

Program of Study	Level 1	Level 2	Level 3	Level 4
Teaching as a Profession (K-12)	Fundamentals of Education (6123)	Teaching as a Profession I (6010)	Teaching as a Profession II (6125) -or- **Dual Enrollment** Teaching as a Profession (K-12) (4086)	Teaching as a Profession III (6126) -or- **Dual Enrollment** Teaching as a Profession (K-12) (4086)
Early Childhood Education Careers	Early Childhood Education Careers I (6015)	Early Childhood Education Careers II (6016)	Early Childhood Education Careers III (6017) -or- **Dual Enrollment** Early Childhood Education Careers (4107)	Early Childhood Education Careers IV (6135) -or- **Dual Enrollment** Early Childhood Education Careers (4107)
				Industry Certification: Child Development Associate (CDA)
Educational Therapy and Support	Educational Therapy and Support I (6180)	Educational Therapy and Support II (6181)	Educational Therapy and Support III (6182) -or- **Dual Enrollment** Educational Therapy and Support (6192)	Educational Therapy and Support Practicum (6183) -or- **Dual Enrollment** Educational Therapy and Support (6192)

Available courses for elective credit in this cluster:
- ***Work-Based Learning: Career Practicum*** (6105) may substitute for the Level 4 offering in all programs of study.
- ***Lifespan Development*** (6013) is a supplemental course which can be offered in addition to courses within the Early Childhood Education Careers program of study but does not count toward concentrator status.

Finance

Program of Study	Level 1	Level 2	Level 3	Level 4
Accounting	Introduction to Business & Marketing (5905)	Accounting I (5910)	Accounting II (5911) -or- **Dual Enrollment** Accounting (4090)	Statistics (3136) -or- AP Statistics (3129) -and/or- **Dual Enrollment** Accounting (4090)
Banking and Finance	Introduction to Business & Marketing (5905)	Accounting I (5910)	Banking and Finance (5899) -or- **Dual Enrollment** Banking & Finance (4091)	Financial Planning (5890) -or- **Dual Enrollment** Banking & Finance (4091)
				Industry Certification: National Certified Compliance Officer (NCCO)

Available courses for elective credit in this cluster:
- *Work-Based Learning: Career Practicum* (6105) may substitute for the Level 4 offering in all programs of study.
- *Personal Finance* (5901) is a course required for graduation but does not count toward concentrator status in a program of study.
- *Cambridge courses* are supplemental courses which can be offered in addition to courses within the career cluster but do not count toward concentrator status.

Government & Public Administration

Program of Study	Level 1	Level 2	Level 3	Level 4
Public Management and Administration	Principles of Public Service (6127)	Public Management and Administration (6129)	Public Law and Budgeting (6128) -or- **Dual Enrollment** Public Management & Administration (4093)	AP US Government & Politics (3445) -or- **Dual Enrollment** Public Management & Administration (4093)

[1] Satisfies ½ credit of U.S. Government required for graduation.

Available courses for elective credit in this cluster:
- *Work-Based Learning: Career Practicum* (6105) may substitute for the Level 4 offering in all programs of study.
- *Court Systems and Practices* (6150) is a supplemental course which can be offered in addition to courses within this program of study but does not count toward concentrator status.

Health Science

Program of Study	Level 1	Level 2	Level 3	Level 4
Public Health	Health Science Education (5998)	Behavioral and Community Health (6130)	Global Health and Epidemiology (6132) -or- **Dual Enrollment** Public Health (4096)	Public Health Practicum (6184) -or- **Dual Enrollment** Public Health (4096)
Diagnostic Services	Health Science Education (5998)	Anatomy and Physiology[2] (3251 or 5991) -or- Diagnostic Medicine (5994)	Diagnostic Medicine (5994) -or- Anatomy and Physiology[2] (3251 or 5991) -or- **Dual Enrollment** Diagnostic Services (4097)	Cardiovascular Services (6131) -and/or- Clinical Internship (5993) -or- **Dual Enrollment** Diagnostic Services (4097)
				Industry Certification for 6131: Certified EKG Technician
Nursing Services	Health Science Education (5998)	Anatomy and Physiology[2] (3251 or 5991) -or- Medical Therapeutics (5999)	Medical Therapeutics (5999) -or- Anatomy and Physiology[2] (3251 and 5991) -or- **Dual Enrollment** Nursing Services (4099)	Nursing Education (6000) -or- **Dual Enrollment** Nursing Services (4099)
				Industry Certification: Certified Nursing Assistant (CNA)
Emergency Services	Health Science Education (5998)	Anatomy and Physiology[2] (3251 or 5991) -or- Medical Therapeutics (5999)	Medical Therapeutics (5999) -or- Anatomy and Physiology[2] (3251 or 5991) -or- **Dual Enrollment** Emergency Services (4100)	Emergency Medical Services[1] (5995) -or- Emergency Medical Services Practicum (6185) -or- **Dual Enrollment** Emergency Services (4100)
				Industry Certification: Emergency Medical Responder (First Responder)

Program of Study	Level 1	Level 2	Level 3	Level 4
Therapeutic Services	Health Science Education (5998)	Anatomy and Physiology[2] (3251 or 5991) -or- Dental Science (6134) -or- Pharmacological Science (6133) -or- Nutrition Science and Diet Therapy[2] (6007) -or- Medical Therapeutics (5999)	Anatomy and Physiology[2] (3251 or 5991) -or- Dental Science (6134) -or- Pharmacological Science (6133) -or- Nutrition Science and Diet Therapy[2] (6007) -or- Medical Therapeutics (5999) -or- **Dual Enrollment** Therapeutic Services (4101)	Clinical Internship (5993) -or- **Dual Enrollment** Therapeutic Services (4101)
			Industry Certification following 6133 AND 5993: Certified Pharmacy Technician	**Industry Certification following 5999 AND 5993:** Certified Clinical Medical Assistant
Exercise Physiology	Health Science Education (5998)	Anatomy and Physiology[2] (3251 or 5991) -or- Rehabilitation Careers (5990)	Rehabilitation Careers (5990) -or- Anatomy and Physiology[2] (3251 or 5991) **Dual Enrollment** Exercise Physiology (4102)	Exercise Science (6170) -or- Clinical Internship (5993) -or- **Dual Enrollment** Exercise Physiology (4102)
				Industry Certification following 6170 AND 5993: Certified Personal Trainer

[1] Local dual credit and/or dual enrollment opportunities exist for this course. [2] Satisfies one lab science credit for graduation.
Available courses for elective credit in this cluster:
- *Work-Based Learning: Career Practicum* (6105) may substitute for the Level 4 offering in all programs of study.
- *Medical Terminology* (5883) is a supplemental course which can be offered in addition to courses within the Health Science career cluster but does not count toward concentrator status.

Hospitality & Tourism

Program of Study	Level 1	Level 2	Level 3	Level 4
Culinary Arts	Culinary Arts I (5979)	Culinary Arts II (5980)	Culinary Arts III (5981) -or- **Dual Enrollment** Culinary Arts (4104)	Culinary Arts IV (6167) -or- **Dual Enrollment** Culinary Arts (4104)
Hospitality and Tourism Management	Hospitality & Tourism Exploration (5933)	Hospitality Marketing (6169)	Hospitality Management (5940) -or- **Dual Enrollment** Hospitality & Tourism Management (4105)	Event Planning & Management (6168) -or- Advertising and Public Relations (5936) -or- **Dual Enrollment** Hospitality & Tourism Management (4105)

Available courses for elective credit in this cluster:
- *Work-Based Learning: Career Practicum* (6105) may substitute for the Level 4 offering in all programs of study.
- *Cambridge courses* are supplemental courses which can be offered in addition to courses within the career cluster but do not count toward concentrator status.

Human Services

Program of Study	Level 1	Level 2	Level 3	Level 4
Social Health Services	Introduction to Human Studies (6137)	Lifespan Development (6013)	Family Studies (6136) -or- **Dual Enrollment** Social Health Services (4108)	Human Services Practicum (6138) -and/or- Psychology (3433) -and/or- Sociology (3432) -or- **Dual Enrollment** Social Health Services (4108)
Dietetics and Nutrition	Introduction to Human Studies (6137)	Nutrition Across the Lifespan (6005)	Nutrition Science and Diet Therapy[2] (6007) -or- **Dual Enrollment** Dietetics & Nutrition (4109)	Human Services Practicum (6138) -and/or- Psychology (3433) -and/or- Sociology (3432) -or- **Dual Enrollment** Dietetics & Nutrition (4109)
Cosmetology	Cosmetology I (5983)	Cosmetology II (5986)	Cosmetology III (5984) -or- **Dual Enrollment** Cosmetology (4110)	Cosmetology IV (6179) -or- **Dual Enrollment** Cosmetology (4110)
				Industry Certification: TN Board of Cosmetology & Barbering— TN Cosmetologist 1010

Program of Study	Level 1	Level 2	Level 3	Level 4
Barbering	Barbering I (5972)	Barbering II (5973)	Barbering III (5974) -or- **Dual Enrollment** Barbering (4111)	Entrepreneurship[1] (5934) -or- **Dual Enrollment** Barbering (4111)
			Industry Certification: TN Board of Cosmetology & Barbering— TN Master Barber 1010	

[1] Satisfies ½ credit of Economics required for graduation. [2] Satisfies one lab science credit required for graduation.

Available courses for elective credit in this cluster:
- *Work-Based Learning: Career Practicum* (6105) may substitute for the Level 4 offering in all programs of study.
- *Cambridge courses* are supplemental courses which can be offered in addition to courses within the career cluster but do not count toward concentrator status.

Information Technology

Program of Study	Level 1	Level 2	Level 3	Level 4
Coding	Computer Science Foundations (6095)	Coding I (6098)	Coding II (6099) -or- Mobile App Development (6178) -or- **Dual Enrollment** Coding (4113)	Coding Practicum (5908) -and/or- AP Computer Science A (3635) -and/or- AP Computer Science Principles (3634) -or- **Dual Enrollment** Coding (4113)
	Industry Certification: CompTIA IT Fundamentals		**Industry Certification:** Microsoft Technology Associate Developer Certificate	
Networking Systems	Computer Science Foundations (6095)	Computer Systems (6094)	Networking (6097) -or **Dual Enrollment** Networking Systems (4114)	Cabling and Internetworking (6093) -and/or- IT Clinical Internship (6096) -or- **Dual Enrollment** Networking Systems (4114)
	Industry Certification: CompTIA IT Fundamentals	**Industry Certification**: Comp TIA A+ Cisco Certified Entry Network Tech (CCENT)	**Industry Certification**: CompTIA Network + Cisco Certified Network Associate (CCNA)	

Program of Study	Level 1	Level 2	Level 3	Level 4
Web Design	Computer Science Foundations (6095)	Web Design Foundations (6100)	Web Site Development (6101) -or- **Dual Enrollment** Web Design (4115)	Web Design Practicum (6171) -and/or- AP Computer Science Principles (3634) -or- **Dual Enrollment** Web Design (4115)
	Industry Certification: CompTIA IT Fundamentals		**Industry Certification**: CIW Web Design Specialist	
Cybersecurity	Computer Science Foundations (6095)	Cybersecurity I (6175)	Cybersecurity II (6176) -or- **Dual Enrollment** Cybersecurity (6191)	Cybersecurity Practicum (6177) -and/or- AP Computer Science Principles (3634) -or- **Dual Enrollment** Cybersecurity (6191)
	Industry Certification: CompTIA IT Fundamentals		**Industry Certification**: CompTIA Security +	

Available courses for elective credit in this cluster:
- *Work-Based Learning: Career Practicum* (6105) may substitute for the Level 4 offering in all programs of study.
- *Introduction to Geographic Information Systems* (6142) is a supplemental course which can be offered in addition to courses within the Cybersecurity program of study but does not count toward concentrator status.
- *Cambridge courses* are supplemental courses which can be offered in addition to courses within the career cluster but do not count toward concentrator status.

Law, Public Safety, Corrections, & Security

Program of Study	Level 1	Level 2	Level 3	Level 4
Law Enforcement Services	Principles of Law, Corrections, and Security (6155)	Criminal Justice I (5987)	Criminal Justice II (5988) -or- **Dual Enrollment** Law Enforcement Services (4117) -or- **Statewide Dual Credit**: Criminal Justice[3]	Criminal Justice III: Investigation (5989) -or- **Dual Enrollment** Law Enforcement Services (4117) -or- **Statewide Dual Credit**: Criminal Justice[3]
Fire Management Services	Principles of Fire and Emergency Services (6154)	Fire Prevention (6173)	Fire Science I (6152) -or- **Dual Enrollment** Fire Management Services (4118)	Fire Science II (6153) -or- **Dual Enrollment** Fire Management Services (4118)
Legal and Correction Services	Principles of Law, Corrections, and Security (6155)	Criminal Justice I (5987)	Court Systems and Practices (6150) -or- **Dual Enrollment** Legal & Correction Services (4119)	AP U.S. Gov't and Politics (3445) -or- **Dual Enrollment** Legal & Correction Services (4119)

[1] Satisfies ½ credit of U.S. Government required for graduation. [2] Local dual credit and/or dual enrollment opportunities exist for this course. [3] Students cannot take Statewide Dual Credit Criminal Justice without having already completed, at minimum, the first two courses in the program of study.

Available courses for elective credit in this cluster:
- ***Work-Based Learning: Career Practicum*** (6105) may substitute for the Level 4 offering in all programs of study.
- ***American Business Legal Systems*** (5892) is a supplemental course which can be offered in addition to courses within the Legal and Correction Services program of study but does not count toward concentrator status.

Marketing

Program of Study	Level 1	Level 2	Level 3	Level 4
Marketing Management	Introduction to Business & Marketing (5905)	Marketing and Management I: Principles[1] (5931)	Marketing and Management II: Advanced Strategies (5932) -or- **Dual Enrollment** Marketing Management (4121)	Advertising and Public Relations (5936) -or- Retail Operations[1] (5938) -or- Event Planning & Management (6168) -or- **Dual Enrollment** Marketing Management (4121)
Entrepreneurship	Introduction to Business & Marketing (5905)	Marketing and Management I: Principles[1] (5931)	Entrepreneurship[1] (5934) -or- **Dual Enrollment** Entrepreneurship (4122)	Business & Entrepreneurship Practicum (6159) -or- Virtual Enterprise International[1] (5900) -or- **Dual Enrollment** Entrepreneurship (4122)

[1] Satisfies ½ credit of Economics required for graduation.

Available courses for elective credit in this cluster:
- **Work-Based Learning: Career Practicum** (6105) may substitute for the Level 4 offering in all programs of study.
- **Business Communications** (5888) is a supplemental course which can be offered in addition to courses within these programs of study but does not count toward concentrator status.

STEM

Program of Study	Level 1	Level 2	Level 3	Level 4
Engineering	Principles of Engineering and Technology (5924)	Engineering Design I (6139)	Engineering Design II (6140) -or- **Dual Enrollment** Engineering (4124)	Engineering Practicum (6141) -and/or- AP Physics (3238, 3239, 3234, or 3240) -or- **Dual Enrollment** Engineering (4124)
		Industry Certification: Certified Solidworks Associate (CSWA)- Academic		
Technology	Principles of Engineering and Technology (5924)	Digital Electronics (5925)	Robotics & Automated Systems (6143) -or- **Dual Enrollment** Technology (4125)	Engineering Practicum (6141) -and/or- AP Physics (3238, 3239, 3234, or 3240) -or- **Dual Enrollment** Technology (4125)
			Industry Certification: Certified Solidworks Associate (CSWA)- Academic	
STEM Education	STEM I: Foundation (6144)	STEM II: Applications (6145)	STEM III: STEM in Context (6146) -or- **Dual Enrollment** STEM Education (4126)	STEM IV: STEM Practicum (6147) -or- **Dual Enrollment** STEM Education (4126)
			Industry Certification: Certified Solidworks Associate (CSWA)- Academic	

Program of Study	Level 1	Level 2	Level 3	Level 4
Project Lead the Way	Introduction to Engineering (PLTW) (6054)	Principles of Engineering (PLTW) (6052)	Choice of the following: Aerospace Engineering (PLTW) (6057) Civil Engineering & Architecture (PLTW) (6056) Biotechnical Engineering (PLTW) (6058) Digital Electronics (PLTW) (6053) Computer Integrated Manufacturing (PLTW) (6055)	Engineering Design and Development (PLTW) (6059)
Engineering by Design	Foundations of Technology (EBD) (5917)	Technological Design (EBD) (5885)	Advanced Design Applications (EBD) (5920) -and/or- Advanced Technological Applications (EBD) (5919)	Engineering Design (EBD) (5921)

Note: Courses marked (EBD) are part of the *Engineering by Design* curriculum package and may require additional costs and training to implement. Courses marked (PLTW) are part of the *Project Lead the Way* curriculum package and may require additional costs and training to implement.

Available courses for elective credit in this cluster:
- *Work-Based Learning: Career Practicum* (6105) may substitute for the Level 4 offering in all programs of study.
- *Introduction to Geographic Information Systems* (6142) is a supplemental course which can be offered in addition to courses within these programs of study but does not count toward concentrator status.
- *Cambridge courses* are supplemental courses which can be offered in addition to courses within the career cluster but do not count toward concentrator status.

Transportation, Distribution, & Logistics

Program of Study	Level 1	Level 2	Level 3	Level 4
Automotive Maintenance and Light Repair	Maintenance and Light Repair I (5879)	Maintenance and Light Repair II (5880)	Maintenance and Light Repair III (5881) -or- **Dual Enrollment** Automotive Maintenance & Light Repair (4128)	Maintenance and Light Repair IV (5882) -or- **Dual Enrollment** Automotive Maintenance & Light Repair (4128)
				Industry Certification: Automotive Service Excellence Student Certification: Maintenance & Light Repair
Automotive Collision Repair	Introduction to Collision Repair (6172)	Collision Repair: Non-Structural[1] (6062) -or- Collision Repair: Painting & Refinishing[1] (6063)	Collision Repair: Non-Structural[1] (6062) -or- Collision Repair: Painting & Refinishing[1] (6063) -or- **Dual Enrollment** Automotive & Collision Repair (4129)	Collision Repair: Non-Structural[1] (6062) -or- Collision Repair: Painting & Refinishing[1] (6063) -or- Collision Repair: Damage Analysis, Estimating, & Customer Service (6149) -or- **Dual Enrollment** Automotive & Collision Repair (4129)
			Industry Certification for 6062: I-CAR Refinish Technician ProLevel 1 or I-CAR Non-Structural Technician ProLevel 1 or Automotive Service Excellence Student Certification: Nonstructural Analysis/Repair **Industry Certification for 6063:** Automotive Service Excellence Student Certification: Painting and Refinishing	

Program of Study	Level 1	Level 2	Level 3	Level 4
Aviation Flight	Introduction to Aerospace (6068)	Aviation I: Principles of Flight (6070)	Aviation II: Advanced Flight (6148) -or- **Dual Enrollment** Aviation Flight (4130)	Work-Based Learning: Career Practicum (6105) -or- **Dual Enrollment** Aviation Flight (4130)
Distribution and Logistics	Foundations of Transportation, Distribution, and Logistics (6069)	Distribution and Logistics I (6072)	Distribution and Logistics II: Management (6024) -or- **Dual Enrollment** Distribution & Logistics (4132)	Work-Based Learning: Career Practicum (6105) -or- **Dual Enrollment** Distribution & Logistics (4132)

[1] May be taught for up to 3 credits. Implementation options vary; contact the career cluster consultant for more information.

Available courses for elective credit in this cluster:
- ***Work-Based Learning: Career Practicum*** (6105) may substitute for the Level 4 offering in all programs of study.
- ***Welding I (6078)*** and ***Welding II (6033)*** are supplemental courses which can be offered in addition to courses within the Automotive Collision Repair program of study but do not count toward concentrator status.
- ***Structural Systems*** may be taken at a participating postsecondary institution as a third- or fourth-level course within the Automotive Collision Repair program of study. Districts should use the course: **Dual Enrollment** Automotive & Collision Repair (4129)
- **Programs of study in the areas of *Aviation Maintenance* and *Diesel Technology*** can be found at a Tennessee College of Applied Technology (TCAT). Please refer to the nearest TCAT campus to determine course offerings. The following dual enrollment course codes apply: *Dual Enrollment Aviation Maintenance* (4131) and *Dual Enrollment Diesel Technology* (4133)

Middle School

Career Cluster(s)	6th Grade	7th Grade	8th Grade
• Agriculture, Food, & Natural Resources		Introduction to Agricultural Sciences (0885)	Introduction to Agricultural Sciences (0885) Career Exploration* (6166)
• Arts, A/V Technology, & Communications • Business Management & Administration • Finance • Information Technology • Marketing	Keyboarding[1] (0610)	Keyboarding (0710)	Keyboarding (0810) Computer Applications (5891 or 3638) Career Exploration* (6166)
• Education & Training • Human Services	Introduction to Social Health[2] (0562)	Introduction to Social Health (0562)	Introduction to Social Health (0562) Career Exploration* (6166)
• Advanced Manufacturing • Architecture & Construction • STEM • Transportation, Distribution, & Logistics	Exploring Technology (EBD) (6047)	Inventions and Innovations (EBD) (0782)	Technological Systems (EBD) (0882) Career Exploration* (6166)
• Advanced Manufacturing • Architecture & Construction • Information Technology • STEM • Transportation, Distribution, & Logistics	STEM Explorers (0649)	STEM Innovators (0749)	STEM Designers (0849) Career Exploration* (6166)
• Health Science		Introduction to Health Science (0837)	Introduction to Health Science (0837) Medical Detectives (PLTW) (0890) Career Exploration* (6166)
• Advanced Manufacturing • Architecture & Construction • Arts, A/V Technology, & Communications • Information Technology • STEM • Transportation, Distribution, & Logistics	Design and Modeling (PLTW) (0783)	Automation and Robotics (PLTW) (0883)	Energy and the Environment (PLTW) (0886) Flight and Space (PLTW) (0887) Green Architecture (PLTW) (0888) Magic of Electrons (PLTW) (0889) Science and Technology (PLTW) (0891) Career Exploration* (6166)

[1] *Keyboarding* may also be used with 4th and 5th grade students (0410, 0510). [2] *Introduction to Social Health* may also be used with 5th grade students (0562).

Note: Courses marked (EBD) are part of the *Engineering by Design* curriculum package and may require additional costs and training to implement. Courses marked (PLTW) are part of the *Project Lead the Way* curriculum package and may require additional costs and training to implement.